Appl. No. 10/633,136
Response Dated March 30, 2007
Reply to Office Action of December 14, 2006

Docket No.: 18098
Examiner: Lu, Jia
TC/A.U. 2611

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1.   (Currently Amended) A method of determining a transfer function used for emphasizing a portion of an electromagnetic signal prior to being processed in a processing system comprising the steps of:

determining a discrete transfer function for said processing system;

determining a target transfer function such that said target transfer function multiplied by the inverse of said discrete transfer function produces a discrete pre-emphasis transfer function; and

transforming any unstable poles and/or zeros in said pre-emphasis transfer function to stable poles and/or zeros;

wherein said target transfer function represents a low pass FIR filter having a gain of about unity across substantially all of the frequency range of said FIR filter.

2.   (Original) The method of Claim 1, wherein said discrete transfer function is determined using one or more selected from the group consisting of an S-function, input and output signals, the inverse-invariant method, and the Steiglitz-McBride algorithm.

3.   (Original) The method of Claim 1, wherein said transformation of said unstable poles and/or zeros is accomplished using an all pass filter.

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4.   (Canceled).

5.   (Original) The method of Claim 1, wherein said processing system comprises one

or more selected from the group consisting of phase modulation, wideband phase

modulation, wideband fractional sigma delta modulation, and wideband fractional sigma

delta modulation for a code division multiple access signal.

6.   (Currently Amended) A method for electromagnetic processing of an input wave,

wherein an input signal containing a characteristic of said input wave is processed to

produce a modified signal, said method comprising the steps of:

        receiving said input signal containing said characteristic of said input wave;

        transforming said input signal using a pre-emphasis transfer function based upon

determining a discrete transfer function for said processing of said input signal,

determining a target transfer function such that said target transfer function multiplied by

the inverse of said discrete transfer function produces said pre-emphasis transfer function,

and transforming any unstable poles and/or zeros in said pre-emphasis transfer function

to stable poles and/or zeros, wherein said target transfer function represents a low pass

FIR filter having a gain of about unity across substantially all of the frequency range of

said FIR filter;

        processing said input signal to generate said modified signal; and

        regulating said modified signal using a control signal containing another

characteristic of said input wave to produce an output signal.

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7.   (Original) The method of Claim 6, wherein said discrete transfer function is

determined using one or more selected from the group consisting of an S-function, input

and output signals, the inverse-invariant method, and the Steiglitz-McBride algorithm.

8.   (Original) The method of Claim 6, wherein said transformation of said unstable

poles and/or zeros is accomplished using an all pass filter.

9.   (Canceled).

10.   The method of Claim 6, wherein said modified signal is a phase modulated signal

and said processing involves one or more selected from the group consisting of phase

modulation, wideband phase modulation, wideband fractional sigma delta modulation,

and wideband fractional sigma delta modulation for a code division multiple access

signal.

11.   (Original) The method of Claim 6, wherein said characteristic used to regulate

said modified signal is magnitude.

12.   (Original) The method of Claim 6, wherein said step of regulating said modified

signal is performed using a plurality of segments.

13.   (Original) The method of Claim 12, wherein one or more of said segments is independently controlled as a power amplifier by a portion of said two or more signals that represent said input wave to contribute power to an output signal.

14.   (Original) The method of Claim 13, further comprising the step of generating an output signal by combining power outputted from one or more of said segments.

15.   (Original) The method of Claim 14, wherein said step of generating an output signal by combining power is accomplished using one or more selected from the group consisting of power transformers, quarter-wave transmission lines, discrete LC components, and a Pi-networks.

16.   (Original) The method of Claim 12, wherein one or more of said segments is independently controlled as a current source by a portion of said two or more signals that represent said input wave to contribute current to an output signal.

17.   (Currently Amended) A method of determining a transfer function used for emphasizing a phase signal from an input wave prior to being modulated in a phase modulator, said method comprising the steps of:

        determining a discrete transfer function for said phase modulator;

        determining a target transfer function such that said target transfer function multiplied by the inverse of said discrete transfer function produces a discrete pre-emphasis transfer function; and

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transforming any unstable poles and/or zeros in said pre-emphasis transfer

function to stable poles and/or zeros;

wherein said target transfer function represents a low pass FIR filter having a gain

of about unity across substantially all of the frequency range of said FIR filter.

18.   (Original) The method of Claim 17, wherein said discrete transfer function is

determined using one or more selected from the group consisting of an S-function, input

and output signals, the inverse-invariant method, and the Steiglitz-McBride algorithm.

19.   (Original) The method of Claim 17, wherein said transformation of said unstable

poles and/or zeros is accomplished using an all pass filter.

20.   (Canceled).

21.   (Currently Amended) An apparatus for electromagnetic processing of an input

wave, wherein an input signal containing a characteristic of said input wave is processed

in a processing circuit to produce a modified signal, said apparatus comprising:

a filter for receiving said input signal containing said characteristic of said input

wave; and transforming said input signal using a pre-emphasis transfer function based

upon determining a discrete transfer function for said processing of said input signal,

determining a target transfer function such that said target transfer function multiplied by

the inverse of said discrete transfer function produces said pre-emphasis transfer function,

and transforming any unstable poles and/or zeros in said pre-emphasis transfer function

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to stable poles and/or zeros, wherein said target transfer function represents a low pass

FIR filter having a gain of about unity across substantially all of the frequency range of

said FIR filter;

a processing circuit for processing said input signal after said transformation in

said filter to generate said modified signal; and

an output circuit for regulating said modified signal using a control signal

containing another characteristic of said input wave to produce an output signal.

22.   (Original) The apparatus of Claim 21, wherein said discrete transfer function is

determined using one or more selected from the group consisting of an S-function, input

and output signals, the inverse-invariant method, and the Steiglitz-McBride algorithm.

23.   (Original) The apparatus of Claim 21, wherein said transformation of said

unstable poles and/or zeros is accomplished using an all pass filter.

24.   (Canceled).

25.   (Original) The apparatus of Claim 21, wherein said modified signal is a phase

modulated signal and said processing circuit is one or more selected from the group

consisting of a phase locked loop, a phase modulator, a wideband phase modulator, a

wideband fractional sigma delta modulator, and a wideband fractional sigma delta

modulator for a code division multiple access signal.

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26.   (Original) The apparatus of Claim 21, wherein said characteristic used to regulate

said modified signal is magnitude.

27.   (Currently Amended) The apparatus of Claim 6 21, wherein said output circuit is

an amplifier comprising a plurality of segments.

28.   (Original) The apparatus of Claim 27, wherein one or more of said segments is

independently controlled as a power amplifier by a said control signal to contribute

power to said output signal, wherein said output circuit further comprises further

comprises a combining circuit for combining the output from each of said segments to

said output, and wherein said combining circuit comprises one or more selected from the

group consisting of power transformers, quarter-wave transmission lines, discrete LC

components, and a Pi-networks.

29.   (Original) The apparatus of Claim 27, wherein one or more of said segments is

independently controlled as a current source by a portion of said two or more signals that

represent said input wave to contribute current to an output signal.

30.   (Currently Amended) A signal transmitter comprising:

        a baseband processor for receiving an input wave and generating a magnitude

signal and a phase signal representing said input wave;

a phase modulator for phase modulating said phase signal, said phase modulator

having a modulator transfer function associated therewith;

a filter for transforming said phase signal prior to being modulated in said phase

modulator, said filter having a pre-emphasis transfer function based upon determining a

discrete transfer function from said modulator transfer function, determining a target

transfer function such that said target transfer function multiplied by the inverse of said

discrete transfer function produces said pre-emphasis transfer function, and transforming

any unstable poles and/or zeros in said pre-emphasis transfer function to stable poles

and/or zeros, wherein said target transfer function represents a low pass FIR filter having

a gain of about unity across substantially all of the frequency range of said FIR filter; and

an amplifier comprising a plurality of segments for amplifying said phase

modulated signal using said magnitude signal to generate an output signal for

transmission.

31.   (Original) The transmitter of Claim 30, wherein said discrete transfer function is

determined using one or more selected from the group consisting of an S-function, input

and output signals, the inverse-invariant method, and the Steiglitz-McBride algorithm.

32.   (Original) The transmitter of Claim 30, wherein said transformation of said

unstable poles and/or zeros is accomplished using an all pass filter.

33.   (Canceled).

34.   (Currently Amended) The transmitter of Claim 30, wherein said output circuit

~~further comprises~~ further comprises a combining circuit for combining the output from

each of said segments to said output signal, comprising one or more selected from the

group consisting of power transformers, quarter-wave transmission lines, discrete LC

components, and a Pi-networks.

35.   (Original) The apparatus of Claim 30, wherein one or more of said segments is

independently controlled as a current source by a portion of said two or more signals that

represent said input wave to contribute current to an output signal.